

June 26, 2008

## PARTICLE SIZE STANDARDS NIST Traceable Mean Diameter

**1. DESCRIPTION** These particle size standards provide accurate and traceable size calibration for particle size analysis. They are part of a series of monodisperse polymer microspheres with calibrated mean diameters traceable to the Standard Meter through the National Institute of Standards and Technology (NIST). Diameters from 20 nanometers (nm) to 160 micrometers (µm) are available as aqueous suspensions in dropper-tipped vials, calibrated by photon correlation spectroscopy (PCS), transmission electron microscopy (TEM) or optical microscopy. The aqueous medium has been prepared to promote dispersion and reduce clumping of the particles. The approximate particle concentration in percent solids is given to facilitate dilution for the calibration and validation of particle analyzers. Diameters from 200 µm to 1000 µm are available as dry spheres, calibrated by optical microscopy. The certified mean diameter is traceable to NIST. Other values are for information only and should not be used as calibration values.

### 2. PHYSICAL DATA

Catalog Number:	4202 and 4202A, Nominal 2 µm
Certified Mean Diameter:	1.998 µm ± 0.022 µm
Standard Deviation:	0.020 µm
Coefficient of Variation:	1.0%
Microsphere Composition:	Polystyrene
Microsphere Density:	1.05 g/cm <sup>3</sup>
Index of Refraction:	1.58 @ 589 nm
Approximate Concentration:	0.45% solids

*1.03 x 10<sup>9</sup> beads  
ml*

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## VALUABLE CERTIFICATE - KEEP ON FILE

### CERTIFICATE OF CALIBRATION AND TRACEABILITY

This certifies that the calibrated mean diameter dimension of this product was transferred by optical microscopy from a stage micrometer calibrated by the National Institute of Standards and Technology (Calibration Report #5524). NIST Standard Reference Materials 1690, 1692, 1960, and 1961 were used to validate the accuracy and traceability of the calibration methods.

Catalog Number: 4202 and 4202A, Uniform Polymer Size Standards	
Certified Mean Diameter: 1.998 µm	Material Batch: 4202-036
Uncertainty: ± 0.022 µm	Certification Date: June 26, 2008

*Ellen B. Layendecker*

Ellen B. Layendecker, Metrology Director  
Duke Scientific Products



Packaging Lot #

*34646*

Expiration Date:

*JAN '12*

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